

# **SPGR Sub-Project Completion Report**

**Coordinated Sub-Project  
on**

**Improvement of Agroforestry Practices for Better  
Livelihood and Environment: BARC Component**

**Duration: June 2011 to November 2014**

**Executing Organization**



**Forestry Unit, Natural Resource Management Division  
Bangladesh Agricultural Research Council, Farmgate  
Dhaka -1215**

**Submitted to**

**PIU-BARC, NATP: Phase-1  
BARC complex  
Farmgate, Dhaka-1215**

**November 2014**

## Table of Contents

Sl. No.	Contents	Page
	Table of Contents	i
	List of Photography	ii
	List of Figure	ii
	Abbreviation and Acronyms	iii
	Executive summary	v
1.	Sub-project title	1
2.	Name of Co-ordinator and Associate Co-ordinator	1
3.	Full address with Phone and email	1
4.	Duration of the sub project	1
5.	Date of Approval	1
6.	Total approved budget	1
7.	Justification of undertaking the sub-project	2
8.	Sub-project objectives	2
9.	Methodology	2
10.	Results and discussion	5
11.	Research Highlights	22
12.	Environmental Screening Matrix	23
13.	Major Attainments	24
14.	Sub-project Auditing	26
15.	Reporting	27
16.	Problems/ Constraints	27
17.	Suggestion for future	28

## List of Photographs

Sl. No.	Contents	Page
1.	Research Review 2013 and Programme Planning 2014 Workshop on Agroforestry Activities in Bangladesh	6
2.	Research Review 2013 and Programme Planning 2014 Workshop on Forestry Activities in Bangladesh	7
3.	Workshop on “Medicinal Plants of Bangladesh (Collection, Cultivation, Preservation and Utilization)”	8
4.	Workshop on “Agroforestry in Hill Ecosystem of Bangladesh”	8
5.	Project Completion Workshop on “SPGR Sub-Projects under Forest”	9
6.	Training programme of “Agroforestry Technology”	10
7.	Monitoring visit to KU component by project personnel of BARC	11
8.	Monitoring visit to BSMRAU component by project personnel of BARC	12
9.	Monitoring visit to BJRI component by project personnel of BARC	13
10.	Monitoring visit to BFRI component by project personnel of BARC	13
11.	Monitoring visit to IFESCU component by project personnel of BARC	13
12.	Monitoring visit to BAU component by project personnel of BARC	14
13.	BARC Executive Chairman’s, visits BFRI and BJRI site	14
14.	Exchange visit of different component	17
15.	Interview taking of farmer and Co-PI, BSMRAU for video documentation	20

## Abbreviation and Acronyms

AF	: Agroforestry
BARC	: Bangladesh Agricultural Research Council
BAU	: Bangladesh Agricultural University
BFRI	: Bangladesh Forest Research Institute
BJRI	: Bangladesh Jute Research Institute
BSMRAU	: Bangabandhu Sheikh Mujibur Rahman Agricultural University
EC	: Executive Chairman
ICRAF	: World Agroforestry Centre ( <i>International Centre for Research in Agroforestry, ICRAF before 2002</i> )
IFESCU	: Institute of Forestry and Environmental Sciences, Chittagong University
KU	: Khulna University
NATP	: National Agricultural Technology Project
NAWGB	: National Agroforestry Working Group Bangladesh
NGO	: Non-Government Organization
NRM	: Natural Resources Management
PI	: Principle Investigator
PCR	: Project Completion Report
PIU	: Project Implementation Unit
SPGR	: Sponsored Public Goods Research



## **Executive Summary**

The Coordinated sub-project on improvement of agroforestry practices for better livelihood and environment - BARC component is aimed at coordinating and backstopping for improvement and monitoring the activities of six participating organizations, viz., Bangladesh Forest Research Institute (BFRI), Institute of Forestry and Environmental Sciences, Chittagong University (IFESCU), Bangladesh Agricultural University (BAU), Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Khulna University (KU), Bangladesh Jute Research Institute (BJRI). The project has been implemented during the period from June 2011 to November 2014. The project started with an inception workshop on 8 September 2011 where the six participating organizations presented their work plan of activities. During sub project implementation, monitoring of their activities has been done regularly. Coordination with the participating organizations has been done through different meetings, workshops, spot visits, e-mail correspondence, telephonic conversation, etc.

Benchmark survey reports were received from all the sub-projects and feedbacks were given to all the organizations as and when required. A workshop on benchmark survey was held at BARC on 17 April 2012. The participating organizations presented their respective reports and critically analyze to improve the report. The research activities of IFESCU, BFRI, BAU, KU, BSMRAU and BJRI were properly monitored time to time to see the output/outcome/impact of all the participating organizations. Number of trainings on “Agroforestry technology” and “Agroforestry Practices in Bangladesh” were held at BARC where eleven training courses were imparted. Eighty participants from different organizations participated in these programme. They opined that such training would be more effective if could be organized for a longer time. The capacity of the participants due to the training enhanced from the baseline evaluation of 35% to 92% on completion of the training. Annual workshop on the progress of this sub-project was arranged on 24 June 2013 at BARC. PIU and forestry unit, BARC jointly organized project completion workshop on 12 and 27 May at BARC to see the total activities and findings of the project with a view to publish a informative and useful final report.

1. Sub-Project Title: Coordinated Sub-Project on Improvement of Agroforestry Practices for Better Livelihood and Environment-BARC Component

2. Name of Coordinator/ Associate Coordinator:

(a) Coordinator : Member Director (NRM)

(b) Associate : Dr. Mohammad Shahjahan  
Coordinator

3. Full address with phone, cell and e-mail:

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Coordinator Bangladesh Agricultural Research Council, Framgate  
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4. Duration of the sub-project: June 2011 to November 2014

5. Date of Approval: 15-06-2011

6. Total approved budget (Taka)	:	63,79,200.00
Total Fund released (Tk.)	:	63,79,200.00
Total fund Spent (Tk.)	:	63,79,200.00
Unspent/balance fund (Tk.)	:	00

## 7. Justification of undertaking the sub-project

Bangladesh Agricultural Research Council (BARC) is the mandated national institute to coordinate research and development in all aspects in the agriculture sector including agroforestry. BARC has taken the initiative in conducting a coordinated research programme involving the key research organizations in improving agroforestry practices for increased productivity of crops, forest resources, better livelihood and environment in the country.

The productivity of the scarce land resources in the country is low. There are also patches of land lying completely vacant. Such land resources can be utilized for more productive through agroforestry, *i.e.*, multilayered crop production in combination with trees. In this context, this project has been undertaken to contribute significantly the enhancement of the livelihood of the people as well as improving the environment.

## 8. Sub-project objectives

To promote forest resources and improve food security, health situation and environment through agroforestry.

*Specific objective:*

- i) To coordinate, backstop, monitor and evaluate the activities of six participating organizations.

## 9. Methodology

The consultant and projects staff assisted the project coordinator in methodical implementation of the project. The BARC existing staff, consultant and scientific staff constantly monitored and evaluated the activities of the subproject through field visits, desk monitoring and/or the reports from the participating organizations.



### *Inception workshop*

The participating organizations formulated the specific information in quantitative terms in regard to their intervention. This information gave the base lines in assessing the changes that were achieved on completion of the project. The participating organizations prepared a questionnaire for collecting the information for each of the subprojects. They shared the baseline information that they collected and the questionnaire in the inception workshop and feedback/suggestions were given for amendment.

### *Monitoring and evaluation of the benchmark survey*

The participating organizations have been constantly monitored the activities during the survey. The BARC existing staff, consultant and scientific staff have also monitoring the survey activities through field visits. On completion of the benchmark survey, the participating organizations have sharing the findings of their baseline in a workshop for evaluation.

### *Quarterly review, annual review, and workshop*

The participating organizations have prepared their quarterly report, annual report and any special report in regard to the implementation of the project for review.

### *Monitoring & evaluation of intervening activities*

The participating organizations have been constantly monitored their activities preferably using the participatory monitoring and evaluation tools. BARC was also monitored the activities of the subprojects through field visits. It was also rendered advisory services to the participating organizations.

### *Project Completion Report (PCR)*

The participating organizations submitted the PCR at the end of the project. BARC evaluated and compiled its PCR on the basis of the reports on the subprojects.

### *Project Management*

The project was coordinated by Forestry Unit, NRM Division, Bangladesh Agricultural Research Council (BARC) as the apex body. The participating organizations are: (1) University of Chittagong (Institute of Forestry and Environmental Sciences); (2) Bangladesh Forest Research Institute; (3) Bangladesh Agricultural University (Department of Agroforestry); (4) Khulna University (Forestry and Wood Technology Discipline); (5) Bangabandhu Sheikh Mujibur Rahman Agricultural University (Department of Agroforestry and Environment) and (6) Bangladesh Jute Research Institute. These organizations were implementing their respective activities with their existing manpower and facilities with meager additional technical staff/research fellow. The BARC component was coordinated, monitored and evaluated the activities of the participating organizations. It could also render advisory backstopping to the organization's, if needed. The project coordinator and associate coordinator were being directly involved in these activities. Scientific Officer, Accounts Officer and Computer operator of the project had assisted them.

### *Project Coordination Mechanism*

The coordination was done on assessment of the reports of the participating organizations and feedback from the workshops. Frequent site visits were done and spot assessment of the activities with advice for improvement was a means of coordination. Emphasis was given on establishment of participatory approach of the end users by the participating organizations.

### *Involvement of ICRAF (World Agroforestry Centre):*

ICRAF personnel provided technical advice during designing and implementing of the experiments as well as analyzing the data. The concern person was assisted in arranging visits and training programs (outside of the country) for the scientific personnel of the project.

## 10. Results and discussion

### *Services of BARC existing staff and Consultant*

The consultant and project staff executed implementation of the task as per the direction of the project coordinator. The BARC existing staff, consultant and scientific staff constantly monitored and evaluated the activities of the subproject through the field visits, desk monitoring and/or the reports from the participating organizations.

### *Organization of inception workshop*

An inception workshop of the project was organized. Representatives from all the six participating organizations and different stakeholders participated at the workshop. Comments/suggestions were given to improve the activities of the organizations given. It was also advised to follow the activities as presented by Khulna University.

### *Quarterly review, annual review, and annual workshop*

### *Monitoring & evaluation of intervening activities*

BARC monitored the activities of the subprojects through field visits. It also rendered advisory services to the participating organizations, from time to time.

### *Analysis of the information/data:*

### *Feedback on Benchmark Survey report*

Benchmark survey reports received from all the organizations, feedbacks were given for all the organizations. The participating organizations finalized their reports.

### *Feedback on monthly, quarterly, half yearly and annual reports*

Monthly, quarterly half yearly and annual reports for 2011-12 and 2012-13 received from all the participating organizations were reviewed and feedback to them.

### *Preparation of Summary report, Annual report, Half yearly report and Quarterly report of BARC*

Summary report, Annual report, Half yearly report and Quarterly report of the BARC component of the project were prepared. The coordination and monitoring activities through the BARC component was highlighted in the Summary report and Annual report. The activities by the participating organization were briefly mentioned in these reports. The summary report of the project till January 2013 has been prepared as per PIU, NATP format.

### *Meeting with partner organizations on agroforestry*

Meetings with six partner organizations implementing SPGR sub-project on agroforestry was held with coordinator, PIs and expert member. The PIs/Co-PIs of the respective components presented the up-to-date progress of their activities.

### *Review workshop*

Research review and programme planning workshop organized on agroforestry system in Bangladesh at BARC on 05-06 June 2012, 25-26 February 2013 and 09-10 April 2014. The objectives of the workshop were to review the research activities of Agroforestry in Bangladesh, make co-ordination among the stakeholders and avoid the duplication of the programme. All the six partner organizations of the SPGR sub-project presented of their respective activities in fiscal year. Agroforestry programme of different organizations were presented, discussed and developed in the workshop.



**Photo 1.** Research Review 2013 and Programme Planning 2014 Workshop on Agroforestry Activities in Bangladesh

Some research review and programme planning workshop organized on forestry activities in Bangladesh at BARC on 13-14 May 2012, 25-26 February 2013 and 12-13 March 2014. The objectives of the workshop were to review the research activities of forestry in Bangladesh, make co-ordination among the stakeholders and avoid the duplication of the programme. All the six partner organizations of the SPGR sub-project presented the progress of their respective activities in respective fiscal year. Forestry programme of different organizations were presented, discussed and developed in the workshop.



**Photo 2.** Research Review 2013 and Programme Planning 2014 Workshop on Forestry Activities in Bangladesh

### *Organization of workshops*

Organized an annual workshop on the Progress of SPGR Sub Project “Improvement of Agroforestry Practices for Better Livelihood and Environment” on 24 June 2013 at BARC. Eighty participants of 40 organizations were present in the workshop. The objectives of the workshop were to review the research activities of SPGR agroforestry sub projects and enrichment and conservation of mangrove ecosystem for 2012-13, to identify the problems, prospects, research activities and development of NATP-SPGR agroforestry and Future research planning for agroforestry and enrichment and conservation of mangrove ecosystem in Bangladesh through these projects. Proceeding of the workshop with valuable recommendations is being published.

Four fruitful workshops on “Constraints and Opportunities of Agroforestry Practices in Newly Accreted Char Land of Bangladesh” at 14 March 2012, “Bamboo Production

and Utilization” at 16 April 2012 “Medicinal Plants of Bangladesh (Collection, Cultivation, Preservation and Utilization)” on 23-24 March 2014 and another workshop on “Agroforestry in Hill Ecosystem of Bangladesh” on 19-20 June 2014 was held at BARC.



**Photo 3.** Workshop on “Medicinal Plants of Bangladesh (Collection, Cultivation, Preservation and Utilization)”



**Photo 4.** Workshop on “Agroforestry in Hill Ecosystem of Bangladesh”

PIU, BARC and Forestry unit jointly organized a Project Completion Workshop on the SPGR Sub Project “Improvement of Agroforestry Practices for Better Livelihood and Environment” on 12 and 27 May 2014 at BARC. All the six partner organizations of the SPGR Agroforestry sub-project presented their Project Completion Report (PCR).

#### *Training on agroforestry practices in Bangladesh*

A two days training programme on “Forestry Technologies for Capacity Building of Professionals” was organized during 18-19 February 2013 at BARC conference room-1.



The objectives of the training programme were to disseminate the forestry technologies to the end users and to popularize the forestry technologies with in the stakeholders. Sixty participants of 30 organizations participated in the training programme.



**Photo 5.** Project Completion Workshop on “SPGR Sub-Projects under Forest”

Two days training programme on “Agroforestry Practices in Bangladesh” was organized during 11-12 March 2013 at BARC. The objectives of the training programme were to develop the concept and acquainted with the tools of agroforestry. The technologies generated in this area in twelve R&D organizations were presented in the training programme. These organizations are: Bangladesh Agricultural Research Institute (BARI), Bangabandhu Sheikh Mujibur Rahman Agricultural University (BSMRAU), Bangladesh Jute Research Institute (BJRI), Khulna University (KU), Sher-e-Bangla Agricultural University (SAU), Forest Department, Institute of Forestry and Environmental Sciences, University of Chittagong (IFESCU), Bangladesh Forest Research Institute (BFRI). Cotton Development Board (CDB), Bangladesh Agricultural Research Council (BARC), Bangladesh Agricultural University (BAU), Sylhet Agricultural University (SAU). Eleven training courses were imparted. Forty participants from different organizations participated in this programme.

Two days training programme on “Agroforestry Technologies Developed through SPGR Project” was organized during 19-20 March 2013 at BARC conference room-1. The objective of the training programme was to disseminate the achievements of agroforestry new technologies developed through SPGR project. All of them appreciated the training programme. They opined that such training should be organized

for a longer time. The capacity of the participants due to the training enhanced from the baseline evaluation of 35% to 92% on completion of the training.

Two days training programme on “Agroforestry Technology” was organized during 17-18 September 2013 at BARC conference room-1. The objective of the training programme was to develop the concept of agroforestry and to be acquainted with the tools of agroforestry. All of the participants appreciated the training.



**Photo 6.** Training programme of “Agroforestry Technology”

#### *NAWG meeting*

Three programme planning meeting of NAWG meeting was organized to develop Agroforestry System in Bangladesh on 15 March 2012, 02 January 2013 and 12 March 2014, discussed the problems & prospects of agroforestry. A dynamic website ([nawg.gov.bd](http://nawg.gov.bd)) was build up for disseminate update information of NAWGB activities.

#### *Annual Report 2011-12 and 2012-13*

Annual report of 2011-12 and 2012-13 has been thoroughly complied and edited. The annual report 2011-12 have already printed and published in NAWGB web site.

#### *Review of reports*

All the Monthly, Quarterly, Halfyearly, Annual Reports and PCRs received from the partner organizations have been reviewed and feedback given to them.



### *Review of the budgets of the participating organizations for the extended project*

As per decision of BARC Executive Council, the project extended till November 2014 for BARC component. Accordingly, the budget has been revised.

### *Monitoring activities*

**Khulna University (KU):** KU is promoting Agroforestry (AF) along the gher dikes in Dumuria and Kaliganj Upazilas. In Dumuria Upazila the farmers were planted mahogany, akashmoni, *Albizia*, etc., in the dikes that are usually remain vacant. Under the plants, were grown different vegetables like tomato, ladies finger, ‘indian spinach, beans, bottle gourd, yam, arum, etc., were grown. The farmers view that gher dikes with agroforestry intervention by KU have already started giving large economic benefits to them. According to the farmers, the trees pose no harm to fish rearing. At Kaliganj which was saline prone area, the farmers were confused if there could be vegetation at all. There were some old plantations on the dikes. The farmers had come forward to the plantation programme in the dikes as per suggestion from the project personnels. As such, new plantation of tree species, eg., mahogany, mango, guava, jujube, neem, coconut, betlenut, lemon, etc were grown.



**Photo 7.** Monitoring visit to KU component by project personnel of BARC

**BSMRAU:** BSMRAU activities are concentrated in three upazilas in Narsingdi district, one upazila in Gazipur district and upazila in Khulna district. In Narsingdi and Gazipur districts AF practice is done mostly under jackfruit trees. There are forest trees as well in the periphery of the orchards in some cases. There are new plantations of litchi and

malta in many cases. The associated crops are papaya, cucumber, brinjal, lemon, etc.,. According to the farmers a good return is coming from the AF practice. In Khulna district the tree species are mango, jujube, etc. Various vegetables such as ladies finger, arum, raised gourd, sponge gourd, cucumber, etc., are successfully grown inter-space fetching a sizeable income to the farmers. Thus, intercropping in mango and jujube plantation is a successful activity. Tall trees like mahogany, coconut, betel nut, etc., in the boundaries of the farm land even do not interfere in production of the intercrops. These inter space was previously remained vacant.



**Photo 8.** Monitoring visit to BSMRAU component by project personnel of BARC

**BJRI:** BJRI activities concentrate growing late jute seeds in agroforestry practice. Most of the sites in Faridpur region were still water-logged till the 3<sup>rd</sup> week of September. The plots selected for growing of jute seed are arable lands that are planted with mango, litchi or mahogany. The plantations are of 1-3 years old. Mango and litchi have been planted with wider spacing, and may be suitable for under-planting. But forest tree species like mahogany are closely planted. As such it may be suitable for under-planting up to 4-5 years of age of the forest tree species.

**BFRI:** BFRI has come up with satisfactory results in its activities in growing medicinal plants in the experimental plots in Bandarban, Rangamati and Khagrachari Hill districts. It has also made a linkage of the relevant farmers to sell their produce to a medicinal company.

**IFESCU:** IFESCU is working with the tribal people in Kaptai upazila to promote AF through community mobilization. To this end, three communities have been formed with the people in villages. However, IFESCU should gear up its activities.

**BAU:** the BARC monitoring team visited at Char Kalibari, Mymensingh and found the farmers harvesting carrot, bitter gourd, sweet gourd, chili, jujube, etc., grown as associated crops under trees. The farmers expressed their satisfaction with harvest.



**Photo 9.** Monitoring visit to BJRI component by project personnel of BARC



**Photo 10.** Monitoring visit to BFRI component by project personnel of BARC



**Photo 11.** Monitoring visit to IFESCU component by project personnel of BARC



### *BARC Executive Chairman visits BSMRAU, BFRI and IFESCU*

Executive Chairman (EC), BARC visited the activities of BSMRAU in three upazilas at Narsingdi district. He was impressed with the agroforestry activities. He suggested that the effect of shade by trees on crop production needs to be studied and the performances in the field activities to be documented by video. He was also visited one site each of BFRI and IFESCU at Kaptai. He observed that the farmers of BFRI site were growing medicinal plant in association with tree species. The farmer was selling the product of medicinal plant to the industries. The Executive Chairman was impressed with the activities. He also inaugurated the propagation chamber at BFRI Head Quater. As such propagules of medicinal plants could be faster.



**Photo 12.** Monitoring visit to BAU component by project personnel of BARC

The EC also visited one site of IFESCU where he found that the farmers promoting agroforestry practice on participatory basis. He opined that this kind of activities should be encouraged.



**Photo 13.** Former EC, BARC visit BFRI and BJRI site

### *Exchange and Monitoring activities*

**BSMRAU:** A team with representatives from BARC, KU, BJRI, BAU, BSMRAU and BFRI visited the BSMRAU activities at Belabo in Narsingdi and Kapasia in Gazipur

districts. The intervention incorporates combined cropping of jackfruit, malta, orange, papaya, lemon and vegetables in three layered garden. The top-most layer contains jackfruit; in the middle layer malta, orange, lemon, papaya, etc., and vegetables in the bottom layer. It is a well managed garden giving a good income with the incieased of about 200% compared to the previous year to the farmes. Then visited plot at Kapasia which is combined cropping of guava and vegetables. The boundaries of the land have contains plantation with mahogany and akashmoni.

Another team containing representatives from BARC, KU, BJRI, BAU, BSMRAU and BFRI visited the BSMRAU activities at Paikgacha and KU at Dumuria. The BSMRAU activities involving agroforestry production of jujube and mango are impressive as stated by monitoring team.

**KU:** The KU has involved *the* local farmers to create plantation of tree species and growing of different vegetables under the tree species along dykes of fish culture. This is a new kind of initiative, the performance of the technomlogy seems to be good.

**BAU:** A team containing *representatives* from BARC, KU, BJRI, BAU, BSMRAU and BFRI visited the BAU activities in Mymensingh district. The team noted that the plot closer to the river bank contains new plantation with hijal-karach along the side of the river. Inside the land there is plantation with lombu, lemon, guava, jujube, etc. The interior boundaries contain akashmoni, mahogany, etc. There is intercropping with various seasonal vegetables and crops. It is a well managed farm. The farmers of the area said that the activity is benefited them because the land remained usually vacant. The farmers are now getting profitable cash return from his field as well as bring long term benefit to the area and the community of the farmers as a whole by growing trees.

**BJRI:** The team consisting of *representatives* from BARC, BJRI, BAU, BSMRAU and BFRI, visited the BJRI activities in Rangpur. The team found that intercropped with jute for seed in the orchard of mango and lichi. The team suggested that orchards with fully grown trees are unsuitable for cultivating jute for seed so, uniformity of orchards with 2-3 years old trees should be maintained for better results. It is also advised to study the performance of jute seed grown in fruit tree orchard in main field of jute in regard to jute yield, quality, etc. The team also emphasized to find out the age of the top layered trees for economic production of the secondary crops.

**IFESCU:** A team consisting of representatives from BARC, KU, BJRI, BAU, BSMRAU and BFRI visited the IFESCU activities at Kaptai and BFRI activities at Kaptai and Bandarban. The IFESCU activities promote community involvement in agroforestry to divert the community from traditional jhum cultivation. The community is interested to grow value added fruits. However, efforts should continue to motivate the community to grow associated agricultural crops instead of growing tuber crops such as ginger, turmeric, etc. The involvement of communities in group should be documented.

**BFRI:** The BFRI activities promote growing of five medicinal plant species, viz, basak, tulshi, satamuli, kalomegh and ashwaghanda. The performance of growing these medicinal plants is encouraging. The plants are being sold locally. If the plants are grown in large scale, there is possibility of their utilization in medicinal industries.

### ***Exchange visit***

The Member Director, Natural Resource Division of Bangladesh Agricultural Research Council (BARC) and the Coordinator of the “Coordinated project on improvement of agroforestry practices for better livelihood and environment” arranged this exchange visit for all the scientists engaged with the six different components of this coordinated project with a view to share experience, knowledge, views of the participating farmers and other related aspects. Thus the visits have been accomplished in three phases.

### **Frist visit:**

Date: 8-10 October 2012

***Location/ Experimental Site:*** BSMRAU at Narsindi and Kapasia, BAU at Char Kalibari of Mymensingh Sadar Upazilla and BJRI at Rangpur.

***Team composed:*** Dr. Ahmad Ali Hasan, MD, NRM and coordinator of this coordinated project; Dr. A.F.M. Akhteruzzaman, consultant of this coordinated project; Dr. Mohammed Shahjahan, Chief Scientific Officer (Forestry), BARC and the Associate coordinator of the coordinated project and Kazi Noor-E-Alam Jewel, Scientific officer, Agroforestry project, BARC; Dr. Shaheen Akhter, Principal Investigator (PI) of BFRI component; Ms. Sayeda Raihana Mary, Co-PI of BFRI component; Professor Dr. Golam Raqqibu, PI of KU component, Dr. Md. Muzibur Rahman, PI of BJRI



component; Dr. Md. Abiar Rahman and Mr. Md Tofael Ahmed, Co-PIs of BSMRAU component and Professor Dr. G.M. Mujibar Rahman, PI of BAU component.



***BFRI Rangamati***



***IFESCU Pagli Nichu Para, Rangamati***



***BSMRAU Narsingdi***



***BSMRAU Khulna***



***BSMRAU Gazipur***



***BAU Mymensingh***

**Photo 14.** Exchange visit of different component

**Observation:** The team visited experimental plots of beneficiary farmer's name Md. Ataullah Bhuiyan of BSMRAU at Belabo. This farmer usually cultivated brinjal in Jackfruit orchard (Jackfruit + brinjal based system) and he introduced Jackfruit+lemon/Malta+Papaya+ vegetables based system. As a result, the income has

been increased due to introduction of the new system and the farmer satisfied with the changing farming system. Then the team visited the plot of Mr. Mozammel Haque of Borzona, Kapasia. Previously this land remains fallow. The BSMRAU component introduced Guava+vegetables based system in this land. After that the team started journey towards Mymensingh. On 9<sup>th</sup> October 2012, the team visited the experimental plots of BAU component at Char Kalibari. Char Kalibari which was previously remains fallow. In this char area, agroforestry systems, viz., timber tree+ vegetables, fruit tree+ vegetables and soil conserving tree+ vegetables have been introduced. The visiting team members shared their views with the beneficiary farmers. After that the team started journey for Rangpur. On 10<sup>th</sup> October, the team visited the BJRI experimental plot at BJRI research station. This experiment was set in a 3-4 yrs mango orchard. The jute plants were in vegetative stage. Then the team moved to Mithapukur area and observed two research plots at Tilakpara village under Sukererhat Union of Mithapukur Upazilla. Both the plots were mango based but, the ages of the orchards were not similar. The team member suggested to select orchards of similar age group, so that the quality of jute seeds produced under these orchards may be compared with the varying shade level.

### **Second visit:**

Date: 15-16 November 2012

**Location/Experimental Site:** BSMRAU at Paikgacha upazilla of Khulna district and Khulna University (KU) at Dumuria Upazilla of Khulna

**Team composed:** Dr. Mohammad Shahjahan, CSO (Forestry), BARC. Professor Dr. Md. Giasuddin Miah, PI of BSMRAU component, Dr. Md. Mainuddin Miah, Co-PI of BSMRAU component, Dr. Md. Muzibur Rahman, Dr. Md. Ayub Khan, PSO of BJRI Rangpur Station and Co-PI of BJRI component, Mr. Md. Zahid, SSO of BJRI Faridpur station and Co-PI of BJRI component, Professor Dr. Golam Raqqibu and Professor Dr. G.M. Mujibar Rahman.

**Observation:** The team visited the experimental plots of BSMRAU component executing at Paikgacha area of Khulna district on 15 November. The team visited the jujube orchards of farmers named Amal Krishna Mondal and Anil Krishna Mondal. In



these orchards, different vegetables based systems were under trial. The team also visited some experimental plots of BSMRAU component in the Paikgacha area where rice+pulses+mango based systems. On 16 November 2012, the team visited the KU component's experimental area at Dumuria Upazilla of Khulna district. This is the gher land component where the farmers of fish ponds used the dikes of their ponds for simultaneous cultivation trees and vegetables. Different tree species, viz., Mahogany, Eucalyptus, Akshmoni and lemon were planted and the interspaces were being used for cultivation of tomato, brinjal, lady's finger and different gourds.

### **Third visit:**

Date: 29 November to 2 December 2012

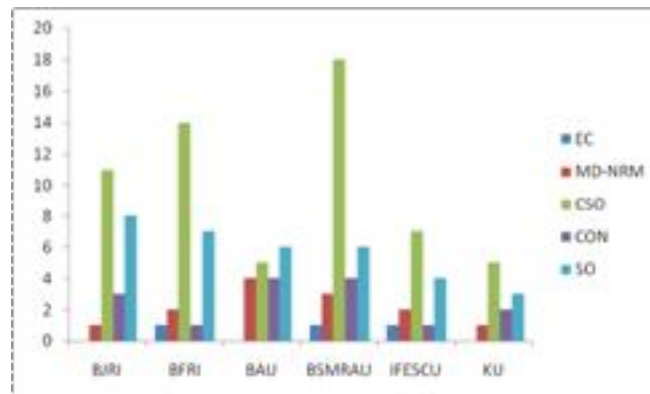
**Location/Experimental Site:** Bangladesh Forest Research Institute (BFRI) component and Chittagong University (CU) component's experimental sites implementing at different places of Chittagong, Khagrachari, Rangamati and Banderban districts.

**Team composed:** Dr. Md. Shahjahan, Prof. G.M. Mujibar Rahman, Professor Dr. Golam Raqqibu, Dr. Md. Muzibur Rahman, Dr. Md. Ayub Khan, Professor Dr. Md. Jashimuddin, PI of CU component, Professor Dr. Shaheen Akhter and Ms. Sayeda Raihana Mary.

**Observation:** The team observed the experimental fields of BFRI component implementing at Khagrachar RARS station on 30 November where medicinal plants, viz., Ashwagandha, Tulsi, Basak, Satamuli, etc., were cultivated along the slope of the hill. The farmers expressed their satisfaction regarding the income received from this farming practice. Then the team moved to Kaptai area of Rangamati district to observe the experimental plots of CU component and BFRI component. The CU component is introducing fruit based agroforestry systems along the hill slope. The BFRI component is cultivating the same medicinal plants in the hill slope. On 1<sup>st</sup> December 2012, the team started journey for Banderban to observe the research site of BFRI component. The farmers of the area are cultivating the same medicinal plants along the hill slope. They already established marketing channel and sold their harvest. They are satisfied with the introduction of the new farming system in lieu of cultivating turmeric which caused erosion of the hill slope.

### *Compare monitoring activities of partner organizations by BARC*

Project personnel of BARC visited and monitored in different components of the Agroforestry sub-project are shown in fig. 01.



**Figure 1.** Monitoring activities of partner organizations by the coordinating body of BARC

### *Lessons learned from this visits*

An exchange visit was conducted the research demo plots of all the six different components of the “Coordinated project on improvement of agroforestry practices for better livelihood and environment” implementing in different ecosystems throughout the country. It appears that most of the components created good impact of the people through the participation of the farmers and also created increased the income of the beneficiary farmers. The most important lesson learned from this program is the successful build up of the confidence of the farmers that the agroforestry farming systems could bring changes in their livelihood of the farmers of the project area as well as neighbouring.



**Photo 15:** Interview taking of farmer and Co-PI, BSMRAU for video documentation

### *Organized a video documentation programme*

A visit to monitoring and video documentation programme was organized throughout the country on SPGR-NATP programme. Coordinator, Associate coordinator, PIs & Co-PIs and Scientific officer of NATP-SPGR sub-project visited all the experimental sites and documented their ideas and views.

### *Recommendations/Conclusion (As per monitoring and exchange visit)*

In general, all the components made significant progress in achieving the targeted goal. However, the following suggestions/recommendations have been made for technology generation:

- i) The BJRI component entrusted for jute seed production through agroforestry farming systems need to be carefull to investigate the quality of the seeds. Because they are producing jute seeds under varying levels of shade of the tree component.
- ii) The gherland component which is utilizing the dikes of ponds of a gher should be selected the tree species which could not destroy the dike. Rather the tree species selected should stabilize the dike for its sustainable use for vegetable cultivation. The Mahogany tree planted in the dike may destabilize the dike in future, because it is a large crown tree spreading roots mostly in horizontal fashion. In this case, tree species belong to Monocot could be suitable.
- iii) The BFRI component cultivating medicinal plants in the hill slope is to determine the active ingredients of each of the medicinal plant. In this case careful investigation is necessary whether the amount and types of active ingredients could be influenced by the varying shade levels. So, the sample collection must be done after measuring the shade level before determination of active ingredients.
- iv) As the agroforestry systems involved perennial trees/shrubs, it always capt some level of shade to the below ground crops, therefore, the other components must take careful consideration during developing agroforestry models for future use.

## 11. Research Highlights

- I. An inception workshop of the project was organized. Representatives from all the six participating organizations and different stakeholders participated at the workshop.
- II. A meeting was held at BARC with Deputy Director General, Dr. August Timo of ICRAF. Six participating organizations presented the activities of their SPGR sub project. Dr. Timo appreciated the initiative of livelihood improvement through agroforestry and remarked that it was a time bound programme in the context of Bangladesh.
- III. Benchmark survey reports were received from all the organizations, Feedbacks were given to all the organizations. A workshop was held at BARC to critically analyze the benchmark survey reports. The participating organizations presented their respective reports.
- IV. The research activities of IFESCU, BFRI, BAU, KU, BSMRAU and BJRI including output/outcome/impact of participating six organizations were successfully monitored.
- V. Executive Chairman, BARC visited the sites of the activities of BSMRAU in three upazilas in Narsingdi district, one site each of BFRI and IFESCU at Kaptai and also visited one site of IFESCU. He was impressed with the agroforestry activities of different sites and also opined this kind of activities should be encouraged.
- VI. Different training on “Agroforestry technology” and “Agroforestry Practices in Bangladesh” was held at BARC where eleven training courses were imparted. Eighty participants from different organizations participated in this programme. They opined that such training should be organized for a longer time. The capacity of the participants due to the training enhanced from the baseline evaluation of 35% to 92% on completion of the training.
- VII. A meeting with six partner organizations implementing SPGR sub-project on agroforestry was held at BARC. The PIs/Co-PIs of the respective components presented the up-to-date progress of their activities.

VIII. Organized the annual workshop on the Progress of SPGR Sub Project “Improvement of Agroforestry Practices for Better Livelihood and Environment” on 24 June 2013 at BARC

IX. Monthly Report, Quarterly Report, Midterm Report, Half yearly Report, Annually Report were prepared. The Annual, Quarterly and Monthly Reports received from the partner organizations have been reviewed and feedback given to them.

## 12. Environmental Screening Matrix:

Sl. No.	Environmental issue	Component	Improvement/Deterioration*				Remarks
			Small	Moderate	Large	None	
1	<i>Biodiversity</i>	Flora		+			
		Fauna		+			
		Genetic diversity		+			
		Exotic varieties			-		
		Local varieties/ cultivars			+		
		Hybrids				√	
2	<i>Soil quality</i>	Organic matter		+			
		Chemical fertilizer use					
		Soil salinity				√	
		Fertility status		+			
		Microbial activity		+			
		Heavy metal contamination				√	
		Water quality		+			
3	<i>Agro-Chemicals</i>	Pesticide use	+				
		POPs					
		IPM					
		Pest infestation	+				
		Bio-pesticides		+			
		Health hazard				√	
4	<i>Pollution</i>	Soil				√	
		Water				√	
		Air				√	

### 13. Major Attainments

#### a. Technical : Output, Outcome and Impact

Major technical activities performed in respect of the set objectives	Output (i.e. product obtained, visible, measurable)	Outcome (short term effect of the research)	Impact (long term effect of the research)	Remarks(reason,if anything otherwise plus any other)
Organization of inception workshop	inception workshop of the project was organized for reviewing the proposul	Representatives from all the six participating organizations participated at the workshop.	Suggestions to improve the activities of the organizations were given.	
Monitoring of Benchmark survey	Information collection on existing status of the project site	Database prepared on existing status	Awareness and motivation on agro forestry	
Monitoring of project activities	Monitoring of project activities were found satisfactory	Compared with previous status	Clear concept on environmental and livelihood changing pattern	
Achievement for the exchange visit	Sharing/exchange the ideas on different agro forestry ecosystem	Actual situation of different sub-project component were identified	Help to achieve the target goal of the sub-project	
Report Compilation	Monthly reports, Quarterly reports, Annually Reports and Project Completion Report	All reports are prepared timely	All reports will helps for improvement of future activities of agro forestry	

#### b. Procurement

*Proquirement was completed as per annual proquirment policy of NATP*

Sl. No.	Items of Procurement	Achievements (plan of procurement)	% of achievements	Remarks
1.	Stationary	As per approved plan	100%	
2.	Photocopy machine	01	100%	
3.	Multimedia overhead projector	01	100%	
4.	Furnitures	As per approved plan	100%	
5.	Computer and Laptop with printer	01+01+01	100%	
6.	Digital Camera	01	100%	
7.	NAWGB web site	--	100%	

**c. HRD/Training**

**Venue: BARC Conference room-1**

<b>Date</b>	<b>Topic of the training</b>	<b>No. of the partivcipating organization</b>	<b>No. of the participants</b>
18-19 February 2013	Forestry Technologies for Capacity Building of Professionals	30	60
11-12 March 2013	Agroforestry Practices in Bangladesh	12	40
19-20 March 2013	Agroforestry Technologies Developed through SPGR Project	30	40
17-18 September 2013	Agroforestry Technology	30	40

**d. Financial**

<b>Sl. No</b>	<b>Major Head</b>	<b>Fund received (Tk.)</b>	<b>Expenditure (Tk.)</b>	<b>Balance/ Unspent (Tk)</b>	<b>Remarks</b>
A.	Contractual Staff Salary	2774350	2774350	0	
B.	Field Research / Lab expenses and supplies	0	0	0	
C.	Operating Expenses	872665	872665	0	
D.	Vehicle Hire and Fuel, Oil and Maintenance	379540	379540	0	
E.	Training/Workshop/Seminar etc.	771000	771000	0	
F.	Publications and printing	598923	598923	0	
G.	Contingencies	464572	464572	0	
H.	Capital Expenses	518150	518150	0	

**e. Materials developed/Publications made:**

<b>Type of material/publication</b>	<b>Title</b>	<b>Number</b>	<b>Remarks(being used by/meant for/any other)</b>
Technology development			Coordination of Technology development
Process development			Coordination of Process development
Information development			Coordination of Information development
Journal publication			Coordination of Journal publication
Books/Monographs/Manual published	1) Annual report 2011-12 on "Improvement of agroforestry	05	

	proactiveness for better livelihood and environment” 2) Research review-2013 and programme planning workshop-2014 on agroforestry research in Bangladesh 3) Proceedings of the Training on Agroforestry Technology 4) Proceedings of the workshop on Constraints and Opportunities of Agroforestry Practices in Newly Accreted Char Land of Bangladesh 5) Proceedings of the workshop on Medicinal Plants of Bangladesh (Collection, Conservation, and Utilization) 6) PCR-BARC Component of Agroforestry sub-project		
Booklet/leaflet/flyer, etc. published			
Any other (patenting of technology, etc.)			

#### 14. Sub-project Auditing

Types of Audit (e.g. BARC/Implementing agency/FAPAD/World Bank/others)	Major observations/issues/objections raised, if any	Status at the sub-project end	Remarks
World Bank	No objection raised	Satisfactory	
FAPAD	No objection raised	Satisfactory	
J.U.Ahmed & Co.	No objection raised	Satisfactory	



## 15. Reporting

Report type	Actual date of submission	Total Number(s)	Remarks
a. Inception report	13.07.2011	01	
b. Monthly report	3/02/2012, 3/03/2012, 3/04/2012, 3/05/2012, 3/06/2012, 3/07/2012, 3/08/2012, 3/09/2012, 3/10/2012, 3/11/2012, 3/12/2012, 3/01/2013, 4/02/2013, 6/03/2013, 7/04/2013, 7/05/2013, 9/06/2013, 8/09/2013, 26/09/2013, 7/10/2013, 3/11/2013, 11/12/2013, 21/04/2014, 21/04/2014, 3/02/2014, 3/03/2014, 3/04/2014, 3/05/2014, 3/06/2014, 3/07/2014, 3/08/2014, 3/09/2014, 2/10/2014	33	
c. Statement of Expenditures (SOE)*	3/02/2012, 3/03/2012, 3/04/2012, 3/05/2012, 3/06/2012, 3/07/2012, 3/08/2012, 3/09/2012, 3/10/2012, 3/11/2012, 3/12/2012, 3/01/2013, 4/02/2013, 6/03/2013, 7/04/2013, 7/05/2013, 9/06/2013, 8/09/2013, 26/09/2013, 7/10/2013, 3/11/2013, 11/12/2013, 21/04/2014, 21/04/2014, 3/02/2014, 3/03/2014, 3/04/2014, 3/05/2014, 3/06/2014, 3/07/2014, 3/08/2014, 3/09/2014, 2/10/2014	33	
d. Quarterly report (s)*	07.02.2012, 07.02.2012, 11/04/2012, 13.08.2012, 03/10/2012, 14/01/2013, 07/04/2013, 07/07/2013, 07/10/2013, 07/01/2014, 07/04/2014, 07/08/2014	12	
e. Six monthly report	07/02/2012, 13/08/2012, 22.01.2013, 30.07.2013, 22.01.2014	05	
f. Procurement plan	3/07/2011	01	
g. Environmental monitoring (Annual Basis)	-	0	
h. Social safeguard status	-	0	
i. Annual research program format	Done as per program schedule	Done as per program schedule	
j. Field Monitoring Report(s)**	13.02.2013 (Jan-March) 20.05.2013 (April-June)	02	By internal monitoring team

\* Provide all the dates by month and quarter since start to date.

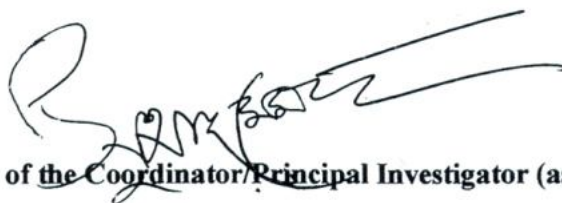
\*\* Conducted at the local level by implementing agencies. To be submitted by quarter.

## 16. Problems/ Constraints

- Delay to complete the recruitment process of the project staff
- Delay in the procurement process
- The reports from the participating organizations have not received on time.

## 17. Suggestion for future

- Project term should be at least five years or long term basis
- Dissemination of the suggested modes by the sub-projects should be extended
- Guide lines should be given by NATP time to time
- Monitoring / exchange visit should be given priority
- More training on agroforestry aspect is needed



Signature of the Coordinator/Principal Investigator (as applicable)

Date ... 27.11.2014

Seal

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Counter signature of the authorized representative

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Executive Chairman  
Bangladesh Agricultural Research Council  
Farmgate, Dhaka-1215

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